

Claims

1. A process of forming an electric conductor on a substrate, consisting essentially of depositing metal particles and a metal-chelate on the substrate and annealing the deposit, wherein annealing decomposes the metal chelate into decomposition products, consolidates the metal particles and a decomposition product of the metal chelate in the formation of the conductor, and bonds the conductor to the substrate.
2. The process of claim 1 wherein annealing is heating.
3. The process of claim 1 wherein annealing is photolytic action.
4. The process of claim 1 wherein the metal particle comprises nickel.
5. The process of claim 1 wherein the metal-chelate is an organic decomposition compound selected from a group consisting of metal carboxylates, metal β -diketonates, metal amides, metal organometallics and metal alkoxides.
6. The process of claim 1 wherein the substrate is ZnO.
7. The process of claim 4 wherein the metal-chelate is nickel(cyclooctadiene)₂.
8. The process of claim 7 wherein annealing comprises heating at about 200° C or less, for about 2 minutes.
9. The process of claim 8 wherein the metal particles have a mean particle diameter of about 1 to 10 nanometers.
10. A process for forming an electric conductor on a substrate, consisting essentially of mixing metal particles and a metal-chelate in a solvent, depositing the mixture on the substrate, evaporating the solvent, and annealing the deposit, wherein annealing decomposes the metal chelate into decomposition products, consolidates the metal particles and a decomposition product of the metal chelate in the formation of the conductor, and bonds the conductor to the substrate.
11. The process of claim 10 wherein annealing is heating.
12. The process of claim 10 wherein annealing is photolytic action.
13. The process of claim 10 wherein the metal particle comprises nickel.
14. The process of claim 10 wherein the metal-chelate is an organic decomposition compound selected from a group consisting of metal carboxylates, metal β -diketonates, metal amides, metal organometallics and metal alkoxides.
15. The process of claim 13 wherein the metal-chelate is nickel(cyclooctadiene)₂.

16. The process of claim 15 wherein annealing comprises heating at about 200° C or less, for about 2 minutes.

17. The process of claim 16 wherein the metal particles have a mean particle diameter of about 1 to 10 nanometers